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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/775,072	02/11/2004	Magnus Fagrell	6796-000010/US/DVB	3314
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EXAMINER				
WONG, EDNA				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/775,072

Applicant(s)

FAGRELL, MAGNUS

Examiner

EDNA WONG

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) 1-3 and 10-43 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/857,455.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

This is in response to the Amendment dated February 29, 2008. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office Action.

Response to Arguments

Election/Restrictions

This application contains claims **1-3 and 10-43** drawn to an invention nonelected with traverse in the reply filed on October 18, 2007. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Specification

The disclosure has been objected to because of minor informalities.

The objection of the disclosure has been withdrawn in view of Applicants' amendment.

Claim Objections

Claim **9** has been objected to because of the following informalities:

The objection of claim 9 has been withdrawn in view of Applicants' amendment.

Claim Rejections - 35 USC § 112

Claim **9** has been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The rejection of claim 9 under 35 U.S.C. 112, second paragraph, has been withdrawn in view of Applicants' amendment.

Double Patenting

Claims **4-8** have been rejected under 35 U.S.C. 101 as claiming the same invention as that of claims **14-18** of prior U.S. Patent No. **6,403,939 B1**. This is a double patenting rejection.

The rejection of claims 4-8 under 35 U.S.C. 101 as claiming the same invention as that of claims 14-18 of prior U.S. Patent No. 6,403,939 B1 has been withdrawn in view of Applicants' amendment.

Claim Rejections - 35 USC § 103

I. Claims **4-8** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **WO 91/12888** ('888).

The rejection of claims 4-8 under 35 U.S.C. 103(a) as being unpatentable over WO 91/12888 ('888) has been withdrawn in view of Applicants' amendment.

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II. Claim 9 has been rejected under 35 U.S.C. 103(a) as being unpatentable over **WO 91/12888** ('888) as applied to claims 4-8 above, and further in view of **WO 95/27387** ('387).

The rejection of claim 9 under 35 U.S.C. 103(a) as being unpatentable over WO 91/12888 ('888) as applied to claims 4-8 above, and further in view of WO 95/27387 ('387) has been withdrawn in view of Applicants' amendment.

Response to Amendment

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thornton*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 4-9 are rejected on the ground of nonstatutory obviousness-type double

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patenting as being unpatentable over claims **14-18** of U.S. Patent No. **6,403,939 B1**

(Fagrell). Although the conflicting claims are not identical, they are not patentably

distinct from each other because:

Present Claim 4 recites:

A method of performing a plurality of chemical reactions simultaneously, said method comprising:

- a) providing a first sample into a first applicator,
- b) providing a second sample into a second applicator,
- c) applying electromagnetic radiation to the first sample in the first applicator from **a first semiconductor based generator**, the first semiconductor based generator being capable of generating electromagnetic radiation at a plurality of frequencies,
- d) applying electromagnetic radiation to the second sample in the second applicator from **a second semiconductor based generator**, the second semiconductor based generator being capable of generating electromagnetic radiation at a plurality of frequencies, and
- e) individually controlling the electromagnetic radiation applied to the first and second applicator by individually and independently controlling the first and second generator in response to control signals from the first and second applicators.

Patented Claim 14 recites:

A method of performing a plurality of chemical reactions simultaneously, said method comprising the steps of:

- a) providing a first sample into a first applicator,
- b) providing a second sample into a second applicator,
- c) applying electromagnetic radiation to the first sample in the first applicator from **a first generating means**, said first generating means being capable of generating electromagnetic radiation at a plurality of frequencies,
- d) applying electromagnetic radiation to the second sample in the second applicator from **a second generating means**, said second generating means being capable of generating electromagnetic radiation at a plurality of frequencies, and
- e) individually controlling the electromagnetic radiation applied to the first and second applicator by individually and independently controlling the first and second generating means in response to control signals from the first and second applicators.

U.S. Patent No. 6,403,939 B1 discloses that the generating means **28** and the

amplifying means **29** are essentially constituted by semi-conductor components. In order to be able to generate a signal between 300 MHz and 300 GHz, several individual semiconductor based generators may be needed (col. 1, lines 10-20; and col. 8, lines 36-40).

When one having ordinary skill in the art asks "what are the first and second generating means in U.S. Patent No. 6,403,939 B1?", one having ordinary skill in the art would look to the patent disclosure and find that the first and second generating means are semiconductor based generators.

The basis for claim terminology is in the description (MPEP § 608.01(o)).

Claim Rejections - 35 USC § 103

I. Claims **4-8** are rejected under 35 U.S.C. 103(a) as being unpatentable over **WO 91/12888** ('888) in combination with **Collins** (US Patent No. 3,281,648).

WO '888 teaches a method of performing a plurality of chemical reactions simultaneously, said method comprising:

a) providing a first sample **5** (= samples contained in the reaction vessels) into a first applicator **1** (= a chamber),

b) applying electromagnetic radiation (= generating microwave radiation) to the first sample (= to heat directly the samples contained in the reaction vessels) in the first applicator **1** from a first generator **12** (= a magnetron tube), and

e) individually controlling the electromagnetic radiation applied to the first

applicator **1** by individually and independently controlling the first generator **12** (= a control unit **11** further controls the magnetron tube) in response to control signals (= from a temperature sensor **13**) from the first applicator **1** (page 3, line 2 to page 4, line 1; and Figure).

The applied electromagnetic radiation is within the range of 300 MHz-300 GHz (= the frequency of microwave radiation) [page 3, lines 37-38].

The first sample is a PCR mixture (= polymerase chain reaction) [page 3, lines 2-13].

The electromagnetic radiation is applied to the samples in cycles of at least two steps (= at three desired temperatures with corresponding incubation periods with the number of cycles desired) [page 4, line 10 to page 5, line 1] where the samples are cooled at least during a part of each cycle (= a quick cooling) [page 4, lines 29-34].

The method of WO '888 differs from the instant invention because WO '888 does not disclose the following:

a. Wherein the first generator is a first semiconductor based generator, the first generator being capable of generating electromagnetic radiation at a plurality of frequencies, as recited in claim 4.

Like WO '888, Collins teaches power sources at microwave frequencies (col. 1, lines 8-11). Collins teaches that particularly advantageous in such circuits are the nonlinear voltage-variable capacitance semiconductor diodes sometimes known as

"varactors." Such devices can be driven from transistor power amplifiers, providing all-solid-state microwave sources with significant advantages compared with electron tube oscillators such as klystrons and magnetrons. The major advantages include precise frequency control and all-solid-state reliability (col. 1, lines 12-24).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the first generator described by WO '888 with wherein first generator is a first semiconductor based generator, the first generator being capable of generating electromagnetic radiation at a plurality of frequencies, because nonlinear voltage-variable capacitance semiconductor diodes can be driven from transistor power amplifiers, providing all-solid-state microwave sources with significant advantages including precise frequency control and all-solid-state reliability as taught by Collins (col. 1, lines 12-24).

Furthermore, the claims, as presently written, do not require that the first and second samples are applied with electromagnetic radiation at a plurality of frequencies.

Being capable of generating electromagnetic radiation at a plurality of frequencies and applying electromagnetic radiation at a plurality of frequencies do not read on each other.

- b. Providing a second sample into a second applicator, as recited in claim 4.
- c. Applying electromagnetic radiation to the second sample in the second applicator from a second semiconductor generator, the second generator being capable

of generating electromagnetic radiation at a plurality of frequencies, as recited in claim 4.

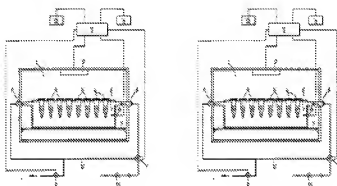
d. Individually controlling the electromagnetic radiation applied to the second applicator by individually and independently controlling the second generator in response to control signals from the second applicator, as recited in claim 4.

e. Wherein the electromagnetic radiation applied to the first and second sample has essentially the same frequency and essentially the same power level so as to expose the first and second sample to essentially the same conditions, as recited in claim 6.

f. Wherein the second sample is a PCR mixture, as recited in claim 7.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the method described by WO '888 with (b) to (f) above because the repetition of steps to provide the same results is well within the skill of one having ordinary skill in the art. The concept of duplication is not patentable. *St. Regis Paper Co. v. Bemis Co. Inc.*, 193 USPQ 8, 11 (7th Cir. 1977). While this decision relates to the duplication of parts, there is no reason why such duplication cannot be extended to a process step.

The repetition would look like this, performing a plurality of chemical reactions simultaneously:



II. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over **WO 91/12888** ('888) in combination with **Collins** (US Patent No. 3,281,648) as applied to claims 4-8 above, and further in view of **WO 95/27387** ('387).

WO '888 and Collins are as applied above and incorporated herein.

WO '888 also teaches wherein the reaction is conducted in an apparatus including at least one generator 1 (= a chamber) for generating waves of electromagnetic radiation (= generating microwave radiation), each of said at least one generators being capable of generating electromagnetic radiation at least one frequency (*inherent*) [MPEP § 2112.01(I) and § 2114], and a controller (= a control unit 11 further controls the magnetron tube) for individually controlling each of said at least one generators 12 (= a magnetron tube) in response to a control signal (= from a temperature sensor 13), the control signal reflecting the status of a sample in the at least one applicator (= a temperature of the sample from the temperature sensor 13) [page 3, line 2 to page 4, line 1; and Figure].

The method of WO '888 differs from the instant invention because WO '888 does not disclose wherein the plurality of chemical reactions are conducted in an apparatus including at least one guide for guiding at least part of the electromagnetic radiation from the first semiconductor based generator to the first applicator, as recited in claim 9.

Like WO '888, WO '387 teaches a microwave heating apparatus.

WO '387 teaches experiments with water (page 32, lines 24-29).

WO '387 teaches using a tapered waveguide 68. A tapered transition may be provided to enhance the efficiency with which the broadband microwave energy is coupled into the microwave cavity (page 12, lines 1-4).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the plurality of chemical reactions described by WO '888 with wherein the plurality of chemical reactions are conducted in an apparatus including at least one guide for guiding at least part of the electromagnetic radiation from the first semiconductor based generator to the first applicator because a tapered waveguide would have enhanced the efficiency with which the broadband microwave energy is coupled into the microwave cavity as taught by WO '387 (page 12, lines 1-4).

Furthermore, the selection of old parts to operate in new environments in order to achieve the same results was held to have been obvious. *In re Ross* 105 USPQ 237.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to EDNA WONG whose telephone number is (571) 272-1349. The examiner can normally be reached on Mon-Fri 7:30 am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

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For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Edna Wong/
Primary Examiner
Art Unit 1795

EW
April 25, 2008